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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/910,886	07/24/2001	Miki Ogawa	35.C15586	3334

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EXAMINER

BAREFORD, KATHERINE A

ART UNIT	PAPER NUMBER
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1762

DATE MAILED: 11/04/2002

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/910,886

Applicant(s)

OGAWA, MIKI

Examiner

Katherine A. Bareford

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-8, 12-16 and 20-22 is/are rejected.
- 7) ☒ Claim(s) 9-11 and 17-19 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

See the attached detailed Office action for a list of the certified copies not received.

- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 5.
- 4) ☐ Interview Summary (PTO-413) Paper No(s) ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

Claim Objections

1. Claims 9-11 and 17-19 are objected to under 37 CFR 1.75(c) as being in improper form because a multiple dependent claim cannot depend from another multiple dependent claim. See MPEP § 608.01(n). Accordingly, the claims 9-11 and 17-19 have not been further treated on the merits.

Double Patenting

2. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

✓ 3. Claims 1-8, 12-16 and 20-22^{are} provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 24-47 and 53-54 of

copending Application No. 09/478,884. Although the conflicting claims are not identical, they are not patentably distinct from each other because the claims of 09/478,884 provide the suggestion of the features of these present claims of providing a solution of silicon alkoxide and

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surfactant in contact with a substrate of alignment control ability and drying the substrate to remove the surfactant and solvent so as to provide an aligned porous material.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

4. Claims 1-8, 12-16 and 20-22 provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-22 of copending Application No. 09/657,616. Although the conflicting claims are not identical, they are not patentably distinct from each other because the claims of 09/657,616 provide the suggestion of the features of these present claims of providing a solution of silicon alkoxide and surfactant in contact with a substrate of alignment control ability and drying the substrate to remove the surfactant and solvent so as to provide an aligned porous material.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Claim Rejections - 35 USC § 112

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

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6. Claims 1-8, 12-16 and 20-22 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1, line 5, "alignment control ability" should be clarified as to what this requires.

Claim 1, lines 6-8, applicant should clarify that the contact of the solution with the substrate provides a coating on the substrate that is then dried. As it stands, the claim does not require that solution be present on the substrate for drying.

Claim 4, lines 3-4, "alignment control ability" should be clarified as to what this requires.

Claim 4, line 6, "drying said substrate" should be clarified as "drying said coated substrate" to indicate that drying occurs after coating.

Claim 5, line 4, "position", does applicant mean "portion"?

Claim 5, lines 6-7, "in a desired shape" is unclear as to what is referred to.

Claim 5, lines 7-8, "a step of drying the substrate", is this repeating the step of claim 4 or is this a new drying step. Furthermore, is the drying occurring after the substrate is coated?

Claim 12, lines 3-4, "alignment control ability" should be clarified as to what this requires.

Claim 12, line 6, "drying said substrate" should be clarified as "drying said coated substrate" to indicate that drying occurs after coating.

Claim 12, line 7, "removing the surfactant" should be clarified as to when in the process this occurs.

Claim 13, line 4, "position" does applicant mean "portion"?

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Claim 13, line 5, "in a desired shape" is unclear as to what is referred to.

Claim 20, lines 4-5, "alignment control ability" should be clarified as to what this requires.

The other dependent claim do not cure the defects of the claims from which they depend.

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(f) he did not himself invent the subject matter sought to be patented.

8. Claims 1-8, 12-16 and 20-22 are rejected under 35 U.S.C. 102(f) because the applicant did not invent the claimed subject matter


As discussed in the provisional obvious double patenting rejections above, the claims of 09/478,884 and 09/657,616 suggest all the features of these claims. Furthermore, these co-

pending applications have different inventors that the present application.

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9. Claims 1-5, 7, 12-13, 15 and 20-22 are rejected under 35 U.S.C. 102(b) as being anticipated by Miyata, et al "Alignment of Mesoporous Silica on a Glass Substrate by a Rubbing Method" (hereinafter "Miyata").

Claims 1, 4, 12, 20: Miyata teaches a method of preparing a porous material, a mesoporous silica. See page 1609, abstract. A substrate is provided. See page 1610, "Experimental Section". The substrate is provided with a polyimide film that is treated by rubbing (to give alignment control). See page 1610, "Experimental Section" and the first column. A solution is provided. See page 1610, "Experimental Section". The solution contains silicon alkoxide and a surfactant. See page 1610, "Experimental Section". The solution is placed in contact with the substrate. See page 1610, "Experimental Section". Then after contact, the substrate is dried to remove the solvents contained in the solution. See page 1610, "Experimental Section". The substrate is also calcined, which removes the surfactant. See page 1610, "Experimental Section".

 Claims 2,³21, 22: the silicon is contained in the solution in a state of compound, as a silicon alkoxide. See page 1610, "Experimental Section".

Claim 5, 13: a desired portion of the substrate is coated (in this case, all, of the substrate). See page 1610, "Experimental Section".

~~Claim 7, 15: the substrate is a substrate coated with a polymer compound film subjected~~
to a rubbing process. See page 1610, "Experimental Section" and first column.

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10. Claims 1-5, 7-8, 12-13, 15-16 and 20-22 are rejected under 35 U.S.C. 102(a) as being anticipated by Japan 2001-058812 (hereinafter '812).

Claims 1, 4, 12, 20: '812 teaches a method of preparing a porous material, a mesoporous silica. See Detailed Description translation, paragraph [0007]. A substrate is provided. See the abstract. The substrate is provided with a polyimide film that can be treated by rubbing (to give alignment control). See Detailed Description translation, paragraph [0019] and [0020]. A solution is provided. See Detailed Description translation, paragraph [0038] and the abstract. The solution contains silicon alkoxide and a surfactant. See Detailed Description translation, paragraph [0038] and [0040] and the abstract. The solution is placed in contact with the substrate. See Detailed Description translation, paragraph [0042] and the abstract. Then after contact, the substrate is dried to remove the solvents contained in the solution. See Detailed Description translation, paragraph [0042] and [0043]. The substrate is also calcined, which removes the surfactant. See Detailed Description translation, paragraph [0043].

VB Claims 2,³₁ 21, 22: the silicon is contained in the solution in a state of compound, as a silicon alkoxide. See Detailed Description translation, paragraph [0038].

Claim 5, 13: a desired portion of the substrate is coated (in this case, all, of the substrate). See Detailed Description translation, paragraph [0042].

~~Claim 7, 15: the substrate can be a substrate coated with a polymer compound film~~
subjected to a rubbing process. See Detailed Description translation, paragraph [0020] +.

Claim 8, 16: a Langmuir-Blodgett film can be used. See Detailed Description translation, paragraph [0025] – [0030], for example.

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11. Applicant cannot rely upon the foreign priority papers to overcome this rejection using Japan 2001-058812 because a translation of said papers has not been made of record in accordance with 37 CFR 1.55. See MPEP § 201.15.

12. Claims 1-6, 12-13, 14 and 20-22 are rejected under 35 U.S.C. 102(a) as being anticipated by Japan 2000-233995 (hereinafter '995).

Claims 1, 4, 12, 20: '812 teaches a method of preparing a porous material, a mesoporous silica. See Detailed Description translation, paragraph [0001] and the abstract. A substrate is provided. See the abstract. The substrate is provided of a single crystal (110) material (to give alignment control). See Detailed Description translation, paragraph [0014] -- [0017]. A solution is provided. See Detailed Description translation, paragraph [0020] and the abstract. The solution contains silicon alkoxide and a surfactant. See Detailed Description translation, paragraph [0020] and the abstract. The solution is placed in contact with the substrate. See Detailed Description translation, paragraph [0023] and the abstract. Then after contact, the substrate is dried to remove the solvents contained in the solution. See Detailed Description translation, paragraph [0023] and [0025]. The substrate is also calcined, which removes the surfactant. See Detailed Description translation, paragraph [0025].

Claims 2, ³/₁ 21, 22: the silicon is contained in the solution in a state of compound, as a silicon alkoxide. See Detailed Description translation, paragraph [0020].

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Claim 5, 13: a desired portion of the substrate is coated (in this case, all, of the substrate). See Detailed Description translation, paragraph [0031].

Claim 6, 14: the substrate can be a (110) single crystal. See Detailed Description translation, paragraph [0011] – [0014].

13. Applicant cannot rely upon the foreign priority papers to overcome this rejection using Japan 2000-233995 because a translation of said papers has not been made of record in accordance with 37 CFR 1.55. See MPEP § 201.15.

Claim Rejections - 35 USC § 103

14. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

15. Claims 6 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Miyata as applied to claims 1-5, 7, 12-13, 15 and 20-22 above, and further in view of MacDougall et al

(US 6365266).

Miyata teaches all the features of these claims except that the substrate is a silicon single crystal substrate with 110 orientation. Miyata does teach that the substrate is silica glass. See page 1610, "Experimental Section".

MacDougall teaches applying a coating to a substrate. Column 1, lines 15-20. The coating is in the form of a solution with a silicon alkoxide and a surfactant that is applied to the substrate. See column 2, lines 55-65 and column 3, lines 10-68. The applied coating is calcined to form a mesoporous silica film. See column 6, lines 5-20 and column 1, lines 15-20. The substrate used can be a single crystal silicon wafer. See column 5, lines 5-20.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Miyata to apply the coating to a substrate of a single crystal silicon wafer as suggested by MacDougall with an expectation of forming a desirable coated wafer, because Miyata teaches a desirable process of forming a coating using a solution with a silicon alkoxide and a surfactant applied to the surface and MacDougall teaches that a desirable surface for forming a coating using a solution with a silicon alkoxide and a surfactant applied to the surface is a silicon single crystal wafer. As to the orientation of the single crystal silicon, MacDougall provides no limitation as to the orientation, and thus, one of ordinary skill in the art would expect desirable results from the various possible orientations, noting that Miyata provides the aligned film.

16. Claims 8 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Miyata as applied to claims 1-5, 7, 12-13, 15 and 20-22 above, and further in view of Fuchs et al (US 5246784).

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Miyata teaches all the features of these claims except that the substrate is coated with a Langmuir-Blodgett film of polymer compound. Miyata does teach that the substrate is coated with a polyimide film. See page 1610, "Experimental Section". It is desirable for the film to be in the nanometer range. See page 1610, "Experimental Section".

Fuchs teaches applying a coating to a substrate. Column 1, lines 5-20. The coating is a polyimide that is applied to the substrate. See column 1, lines 5-20. The applied coating is applied by a Langmuir-Blodgett technique to form a thin coating, thinner than by a normal spin coating. See column 1, lines 5-30 and column 2, lines 5-65. The coating can be 0.3 to 500 nm. See column 2, lines 60-65. The substrate used can be a silicon wafer. See column 2, lines 35-40.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Miyata to apply the polyimide coating to the substrate by the Langmuir-Blodgett method as suggested by Fuchs with an expectation of forming a desirable coated wafer, because Miyata teaches a desirable process of forming an aligned coating using preliminary coating of a polyimide applied to the surface and Fuchs teaches that a desirable method for forming a nanometer thick polyimide coating is by the Langmuir-Blodgett process.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Katherine A. Bareford whose telephone number is (703) 308-0078. The examiner can normally be reached on M-F(7:00-4:30) with the First Friday Off.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Shrive P. Beck can be reached on (703) 308-2333. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9310 for regular communications and (703) 872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

Kate A. Bareford
KATHERINE A. BAREFORD
PRIMARY EXAMINER
GROUP 1100 1700